# 2C: Aquatic Plants and Algae

## Questions & Answers

**Q: (unintelligible question about) the proposed ESA listing for chinook salmon?**

**A:** Since there was a proposed listing of summer chum, and chum salmon do tend to use eelgrass beds, I'd say that's more important.

**Q: Does anybody else here have any thoughts on this?**

**A:** I don't know, John, but it seems like the fish might be doing a couple things. First, they might spend time in eelgrass meadows when they're smaller where they're feeding on the zooplankton that are associated with the plants. Then, as they get larger, they may switch to planktonic feeding – though there may be more plankton associated with kelp beds. That would be my guess. There wouldn't be as many as these benthic things, but they'd just be more productive in the kelp beds. Sort of a switch with size or with age.

**Norris:** I'd like to expand it to include dock structures. One of the things that we did in Port Townsend Bay is that we did the underwater survey for the Union Wharf when they demolished that. On underwater video surveys, we didn't see any fish in the eelgrass, but when we took the camera underneath the dock, it was full of fish. And the contractors, in their process of bidding, looked at the videotape to determine, because one of their requirements was that they had to remove all of the things that they … they couldn't just cut the dock off and let it sink. They had to haul the stuff away. And they wanted to know what was on the bottom before they started their work. When they looked at the video and saw all of the fish under the dock, one of them called me up and said, hey, maybe we should be leaving this stuff. Maybe an artificial reef is another important component of this habitat as well as the eelgrass. I don't know the answer to that. I'm just a mapper. But that's some of the kinds of comments that we get from the citizen volunteers that come out on the boat.

**Comment:** I think that I would just add also that John's question touches on an important kind of preconception. And I think that it might be largely based on lack of information. I think that people know more about juvenile salmonid use of eelgrass beds and so there's this perception that they use it preferentially over kelp beds. I think that might be more a product of a lack of looking at kelp beds.

**Comment:** I would offer that we might also think about nonvegetative areas as well. Maybe what we look at is what Ron hinted at.

**Q: Is the continuous eelgrass more valuable than patchy areas?**

**A:** We don't know. That's a very good question. We know edges are more productive, in general, in ecosystems, but if you stand in a meadow at low tide with a foot of water, you can see fish come swim around the edges and come hang around and feed on the edges and crabs will march right in the center of the patch. So there is differential use, but that would be a great study.

**Q: How do the kelp beds function? You said that you couldn't really answer that question in the Puget Sound study. What about the Puget Sound study didn't allow you to do that?**

**A:** We didn't look at the invertebrates.

**Q: Dr. Norris, I don't think you said what changes had been seen in Port Townsend that may or may not have caused the increase in coverage. Has there been some systematic management effort, or is it just chance?**

**Norris:** The particular area where we estimated basal area coverage has had no significant anthropogenic effects that I am aware of, in terms of dock structures or anything. That's one of the reasons that we chose that particular site. The other example I did mention, though, was the dredging of the eelgrass bed that clearly removed a large amount of eelgrass.

**Q: Did you measure factors other than the area of a bed, such as density, length, perhaps?**

**A:** Yes we did. We measured all that stuff. We just presented the density data. As you get deeper, the plants tend to get larger and the density goes down, but there's still 100% cover. So actually cover might be a better thing to look at, rather than density, but we just used the density data here.

**Q: Is there a difference in Manchester between the new and the old pier regarding the shading effects given the construction?**

**A:** The new pier didn't show up in my photographs, but the section that crosses the intertidal zone is actually narrower than the old pier was. It's actually a really interesting study because there is a solid part in the middle and then there are just pipes on either side with air between them, and we actually have eelgrass growing underneath that section of the pier. And it's from about minus-one foot below mean low down to about minus-six or seven, and it's slowly filling in those areas underneath the pier. It has been really interesting to see it fill in.

**Q: Does the bulk dry density vary between the different laminae? That would effect the accumulation.**

**A:** No, it didn't. And we actually measured the thickness of the laminae. We couldn't measure it well enough, given the data on the x-rays, although there were two or three laminae that were much, much larger – and those actually correspond to seismic events that have happened in the past.